

AMENDMENTS TO THE DRAWING:

The attached replacement sheet of the drawing includes Fig. 1. Please delete the original drawing and substitute therefore the new drawing submitted herewith wherein the various features are legible.

Attachment: Replacement Sheet
Annotated Sheet Showing Changes

REMARKS/ARGUMENTS

The Patent Office has objected to FIG. 1 because "it contains various marks which make certain features of the Applicant's invention illegible". Applicant does not understand this rejection. Nevertheless, it is thought that due to the gray background, the drawing is not acceptable. Accordingly, Applicant submits herewith an identical drawing which does not have a gray background and at the bottom of the drawing the Chinese word has been deleted and the word "FIG." has been substituted therefore. Accordingly, entry of the substituted identical drawing is hereby solicited.

Claims 1-12 have been rejected under 35 U.S.C. §112, second paragraph, inasmuch as claim 1 does not contain an antecedent basis for the term "the combustion mouth" in line 4. Accordingly, Applicant has amended claim 1 to set forth an antecedent basis.

Claims 1-6 and 10-12 have been rejected under 35 U.S.C. 102(b) as being anticipated by Meunier, U.S. Patent 4,423,558. The Patent Office states that this reference is very similar and that a sand outlet is located in the bottom of the fluidized bed heat exchanger as shown in the drawing located on page 4 of the Official Action. The Patent Office has further noted that if the body of claim 7 was incorporated in claim 1, all claims would be allowable.

Instead, Applicant has inserted the body of claim 6 into claim 1 and cancelled claim 6. It is Applicant's position that of the sand outlet location on the bottom of the furnace body near the side of the combustion mouth is distinguished from the Meunier reference. Applicant's invention relates to a casting sand heating apparatus which heats sand as it falls through the furnace by heat exchangers 19 and the heat exchanges just above combustion chamber 12, and finally is heated by the hot flame injected through burner 6.

In contrast, it is respectfully submitted that cylindrical column 1 of the Meunier reference as shown in FIG. 1, contains heat exchangers 12 through 15, and a fluidized bed 7. The definition of a fluidized bed is that the flow or pressure of the air admitted through fluidization grill 2 is at least equal to the weight of the particles to create a fluidized bed so that the particles do not fall therethrough. The particles of Meunier are heated by the fluidized bed 7 to a temperature as high as 1,200°C, see Column 5, lines 24-27. Such high temperatures ensure a high upper level of the fluidized bed so that the particles can flow out of column 1 through overflow of conduit 8. That is, the particles remain suspended in the fluidized bed and only escape through overflow conduit 8. Thus, it is respectfully submitted that the particles of the reference do not exit through the bottom of the furnace as indicated by the Patent Office's drawing.

The Meunier reference also discloses the utilization of two columns as set forth in FIG. 5. As apparent therefrom and from the description in the patent, hot fluidized particles from the first heat exchanger do not exit through the bottom of the heat exchanger but rather flow out through overflow conduit 8. While these particles are admitted to the second heat exchanger, there is no explanation whatsoever as to how the particles are removed therefrom. One can only speculate that they are blown out through some side port from the air being admitted or in some other manner. The bottom line is that FIG. 5 of the Meunier reference simply do not teach or suggest to one skilled in the art how the particles are removed from the second heat exchanger.

Amended claim 1 now states that the sand outlet is at the bottom of the furnace body near the side of the combustion mouth and is thus readily distinguished from the reference.

In view of the above amendments and arguments, a notice of allowance of claims 1-5 and 7-12 is earnestly solicited.

Respectfully submitted,

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